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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,809	12/12/2003	Karlheinz Bing	BING ET AL.-6	2779

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EXAMINER

AFZALI, SARANG

ART UNIT	PAPER NUMBER
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3726

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/734,809

Applicant(s)

BING ET AL.

Examiner

Sarang Afzali

Art Unit

3726

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Amendment filed 7/3/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

1. The applicant's amendment filed on 07/03/2006 has been fully considered and made of record.

***Claim Objections***

2. Claims 1-6 are objected to because of the following informalities: In claim 1, line 17, the limitation "cover surfaces" should read - - contact surfaces - - for more clarity. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1, lines 13, 14, the limitation "minimal projection and a minimal parting" and line 16, the limitation "a minimal number of weld points" are indefinite and not clear as what is considered minimal.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3726

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 & 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over (WO 02/06658) and/or in alternative in view of Campbell (US 2,987,810).

As applied to claims 1 & 6, WO 02/06658 discloses a method for the production of a forged piston for an internal combustion engine, the piston having a combustion depression provided on the piston head, comprising the steps of: forming the piston from a first cylindrical part (14, Fig. 3) having at least one flat face made of oxidation-resistant steel (stainless steel) and a second cylindrical part (16, Fig. 3) having at least one flat face made of hot-forgeable steel (steel SE 4140), with the same diameters, to produce a piston blank (10, Fig. 2), said step of forming comprising: bringing together the parts at their faces and aligning them with respect to their diameters, so that the faces form a minimal projection and parting; connecting the two parts (12, Fig. 3); and finishing the piston blank via machining to produce a piston ready for installation the internal combustion engine (Fig. 2).

WO 02/06658 teaches the invention cited including that the parts may be fixed in any suitable way. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have fixed the parts in WO 02/06658 using a spot welding obtained through electron beam welding, in order to achieve the benefits of using such known and widely used welding technique.

In alternative, if the Applicant does not agree that WO 02/06658 teaches the spot welding, Campbell teaches a method of connecting two metal pieces wherein two weldable sheets of metal are superimposed and secured to each other by spot welding prior to being forge welded at the contact surfaces (col. 2, lines 43-47).

It would have been obvious to one of ordinary skill in the art at the time of invention to have provided WO 02/06658 with spot welding as taught by Campbell in order to provide a suitable joint of the parts prior to being connected at the contact surfaces by a forging step.

7. Claims 2 and 3, are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 02/06658 in view of Campbell as applied to claim 1 above, and further in view of Ricaud et al. (U.S. 6,705,915).

As applied to claim 2, WO 02/06658/Campbell teaches the claimed invention with the exception of not explicitly teaching the three weld points offset from one another by an angle of 120 degrees.

However, Ricaud et al. teaches an assembling method wherein two cylindrical parts (cup 13 and skirt 2, Figs. 2A-C) are welded (weld beads 23) at three weld points (19) on the circumference by an angle 120 degrees apart from each other (col. 3, lines 29-32) to ensure a good mechanical retention of the cup in the skirt (col. 3, lines 18-19).

It would have been obvious to one of ordinary skill in the art at the time of invention to have provided WO 02/06658/Campbell with a suitable number of weld points

Art Unit: 3726

and weld technique as taught by Ricaud et al. to provide an effective and a good mechanical retention of the cup and skirt (col. 3, lines 31-32).

As applied to claim 3, Ricaud et al. teach that the step of fixing (welding of two parts together) require no preheating of the parts.

8. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 02/06658 in view of Campbell as applied to claim 1 above, and further in view of Rudd (U.S. 3,872,275).

As applied to claims 4 & 5, WO 02/06658/Campbell teach the claimed invention including the fixing of first and second parts to each other. However, WO 02/06658/Campbell do not explicitly teach the step wherein immediately after fixing (welding) of parts together, the parts are inductively heated and that the heating process takes place at a temperature of 1100°C to 1300°C.

Rudd teaches a method of forge welding two dissimilar metal parts in a heated state wherein the heating takes place inductively by suitably configuring the induction coil and adjusting its position with respect to the desired forge weld line and by properly controlling the heating time to provide a continuous forge weld between the two metal parts without undesirable heating (col. 2, lines 19-26) and further teaches that heating process takes place at a temperature of at least 2000°F (equivalent to 1093°C) to forge weld the surfaces of the materials welded to each other (col. 2, lines 45-54). It would have been obvious to one of ordinary skill in the art at the time of invention to have provided WO 02/06658/Campbell with induction heating step as taught by Rudd to

Art Unit: 3726

obtain an effective rapid continuous forge weld seam and without causing undesirable heating hence preventing damage or harmful distortion of portions of the parts outside of the forge weld area (col. 2, lines 22-26).

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

10. Applicant's arguments, see "Remarks", page 1, paragraph (2), with respect to the objection to the abstract and paragraph (3) with respect to the rejection of claims 1-6 under 35 USC 112 2<sup>nd</sup> paragraph, have been fully considered and are persuasive. The objection to the abstract and the rejection of claims 1-6 under 35 USC 112 2<sup>nd</sup> paragraph as outlined in the office action mailed on 3/16/2006 have been withdrawn.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 3726

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarang Afzali whose telephone number is 571-272-8412. The examiner can normally be reached on 7:00-3:30 M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

S.A.

SA

9/18/2006



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PRIMARY EXAMINER